



Phillips 66  
Bayway Refinery  
P.O. Box 222  
1400 Park Avenue  
Linden, New Jersey 07036

**CERTIFIED MAIL - RRR  
7017 0190 0000 0183 3653**

February 19, 2020

**NJPDES Permit NJ0026671  
Program Interest ID #46322  
Inspection Report & NOV Response**

New Jersey Department of Environmental Protection  
Central Bureau of Water Compliance and Enforcement  
Mail Code 44-03/PO Box 420  
401 East State Street  
Trenton, NJ 08625-0420  
Attn: Andrew Coleman

Dear Mr. Coleman:

On January 8, 2020, we received your Compliance Evaluation Inspection report (CEI Report) dated January 3, 2020 for NJPDES Permit No. NJ0026671, Program Interest ID # 46322. Attached to the CEI Report was an associated Notice of Violation (NOV), EA ID# PEA190001-46322, signed December 26, 2019. In your email dated January 9, 2020 to George Bakun, Phillips 66, you approved a revised response due date for both the CEI Report and NOV to February 24, 2020. Together, the CEI Report and NOV list eleven deficiencies, three recommendations, and two corrective actions. This letter and its attachment contain responses to the CEI Report and NOV deficiencies, recommendations, and corrective actions, including remedial measures with implementation timing where appropriate. Please contact George Bakun at [george.bakun@p66.com](mailto:george.bakun@p66.com) or (908) 523-5896 if you have any questions regarding the responses.

**Certification:**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for purposely, knowingly, recklessly, or negligently submitting false information.

  
Hope Gray  
Bayway Refinery HSE Manager

c: Murray Lantner  
USEPA Region 2  
Water Compliance Branch  
290 Broadway, 20<sup>th</sup> Floor  
New York, NY 10007

**Bayway Refinery**  
**January 3, 2020 Compliance Evaluation Inspection (CEI)**  
**Report & December 26, 2019 Notice of Violation (NOV)**  
**NJPDES Storm Water Discharge Permit NJ0026671: Program Interest ID #46322**

**January 3, 2020 CEI Report Deficiency Nos. 1-11**

**Deficiency # 1:** (repeated herein for reference)

Failure of your Stormwater Pollution Prevention ("SPP") Plan to control outdoor waste management/handling of roll-off containers stored on the property. Part VI of P66's SPP Plan entitled "Roll-Off Management" states the following:

- "Roll-offs are required to be covered except when being loaded or unloaded ..."
- "Roll-offs in use or awaiting hauling will be visually inspected for seepage or leakage on a weekly basis. Leaking roll-offs will be removed from service."

The following deficiencies were noted at the following locations:

**June 12**

- a. At the Tank 519 Waste Management Area, a 30 yard roll-off filled with red, oily water, contaminated boom, wood and other trash was observed. Its cover was torn open, and the liquid level within was within 2' of the top – high enough to cause a spill if the container was lifted to move it. See the attached photo.
- b. At the Tank 519 Waste Management Area, a 30 yard roll-off containing oil/sludge stained hay was observed. It was covered with a heavy-duty tarp, but contaminated hay had spilled out of one end, staining the ground below it. In addition, the walls of this roll-off were rusted, and red oily water was dripping out of this container to the ground from multiple locations. See the attached photos.
- c. At the Tank 519 Waste Management Area, a 30-yard roll-off filled with PE pellets was observed with a heavy duty cover unsecured at the end, allowing rainwater to flow in. Spilled PE pellets were observed on the ground around it. See the attached photos.
- d. At the Tank 519 Waste Management Area, another 30-yard roll-off filled with boom, wood, dirt and trash was observed with a torn cover of thin sheet plastic that was actively tearing in the wind. See the attached photo.
- e. At the Tank 519 Waste Management Area, two other uncovered 30-yard roll-offs contained used, flexible hose. This hose is considered by the Department to be an industrial source material unless fully washed and cleaned. See the attached photo.
- f. Twin 30-yard roll-offs receive waste polypropylene ("PE") at their respective manufacturing area. These roll-offs are partially open to the elements, including wind. Waste PE fluff, blown out of the roll-offs, was visible on the surrounding grounds. See deficiency 5 below.

**June 13**

- g. Many of the deficiencies noted the previous day in the Tank 519 Waste Management Area were corrected. Two of the roll-offs previously observed to be open were covered with thin black plastic sheeting that allowed rain that fell the night before to collect on top of the sheeting, increasing the likelihood of another tear – see the attached photo. The Department was unsure why heavy duty covers with curved frames (to shed water) were not available and in use.

- h. A 30-yard roll-off was observed parked outside your hazardous waste drum storage area. It had a heavy-duty cover that was torn open, with light duty plastic covering some of the material within. See the attached photos.

#### **October 29**

- i. A 30-yard roll-off with an unknown material was observed in the Tank 519 Waste Management Area with a heavy-duty cover that was unsecured at one end, allowing rain to enter. This cover was reportedly fixed later in the day.
- j. A small pile of material was observed spilled on the ground in the Tank 519 Waste Management Area. Facility representatives described the material as inert. This material was reportedly removed the following day. See the attached photo.
- k. PE fluff and pellets continue to be noted on the ground surrounding the twin 30-yard roll-off containers in the PE manufacturing area. These roll-offs are partially open to the elements, including wind. See deficiency 5 below.

P66 operators conduct weekly inspections of the Tank 519 Waste Management Area and maintain records. During the October 29 inspection, this writer requested inspection records for the area from May and June 2019. The June 12, 2019 record noted that one leaking container was moved to the 505 waste management area. However, in the checklist, the following questions were marked with a yes;

- Area containers stored in a way that will not cause a spill or leak?
- Area containers free of waste material on outside of container lids?
- Are bows in place and tarps fastened tight?

No mention of the cleanup activities conducted after the June 12 inspection were recorded. None of the other weekly inspection records for this area noted any deficiencies in May or June.

A review of Department records indicates that material handling deficiencies with roll-off containers were noted in previous inspection reports issued by the Department on January 31, 2012, May 16, 2013, and October 15, 2015. See the attached Notice of Violation ("NOV").

#### **Response to Deficiency # 1 (and #11):**

This response is organized as follows:

- Description of the facility and procedures
- NOV response
- Deficiency response

#### **Facility Description and Procedures:**

The area adjacent to Tank 519 is used for nonhazardous waste management, including temporary storage of roll-offs to be sent offsite for disposal and roll-offs not in use, either because they are awaiting use or have been taken out of service awaiting permanent removal. BMPS are used to enhance containment. Except for two entrance gates, a containment system has been installed around the area perimeter that includes porous stone berms to contain solids while allowing storm runoff to pass through. Storm water runoff from the area that passes through the porous stone then has to pass through downstream oil containment facilities before discharging into Morses Creek. Bayway follows its DPCC Plan to respond to liquid leaks within the area.



The area where roll-offs containing plastic residual are stored at the Polypropylene Plant drains to the onsite wastewater treatment plant although it is possible for loose plastic residual to be wind-blown to areas that drain to the Railroad Avenue Ditch. Control of plastic residual that discharges into Railroad Avenue Ditch, whether from the pellet separator or by being wind-blown is addressed in Bayway's response to NJDEP's NJPDES NJ0001511 inspection report and NOV, which is not repeated here for brevity.

Please note that roll-offs used onsite are supplied and managed by a contractor. Contract terms and conditions include but are not limited to the following:

- Contractor's equipment shall be in good working order.
- Contractor shall be responsible for advising Bayway of Contractor owned equipment breakdowns and providing suitable substitute equipment (equipment list includes waste storage containers).
- Contractor must comply with all environmental programs and procedures.
- Contractor shall ensure all wastes and debris are properly disposed, contained or secured at the end of each shift.
- Contractor will conduct quarterly visual inspection of each roll-off, including tarp condition, container integrity and seal condition.

#### NOV Response:

NJDEP noted in the NOV "Failure of the SPPP to control housekeeping in the 519 Waste Management and Polypropylene areas and elsewhere. Roll-off containers filled with waste were observed uncovered, exposed to rain. Several had spilled material on the ground. One was leaking from rust holes in the side. White fluff material was blown out of roll-offs in the PE production area by wind." The NOV then specifically cites N.J.A.C. 7:14A-6.2(b)1, which requires implementation of BMPs to control or abate the discharge of pollutants. However, discharge of pollutants is defined at N.J.A.C. 7:14A-1.2 as a release of a pollutant into the waters of the State. The definition goes on to further specifically state that a leak into a secondary containment system which does not involve a release into the waters or lands of the State is not a "discharge" for NJPDES purposes.

Considering the above and for the following reasons, Bayway does not believe that the cited observations constitute a violation of the permit:

- Where practicable, Bayway has multiple BMPs in place so that permit compliance is not necessarily reliant on any single BMP.
- Although material was released, it was contained within the waste management area, generally limited to the proximity of the roll-off and subsequently remediated.
- Although some of the released material was oily, it was responded to promptly upon observation, as confirmed by subsequent NJDEP observations.
- Other than at the photographed roll-off locations, there were no other random oily spots observed in the area, supporting that Bayway responds promptly to identified leaks.

#### Deficiency Response:

Although P66 does not agree that it was in violation of N.J.A.C. 7:14A-6.2(b)1 for the reasons stated above, Bayway will take actions to improve our processes and their implementation so as to further reduce the risk of a discharge. As such, we plan to implement the following actions in response to the inspection report deficiencies and NOV.

- We have expanded the SPPP Roll-Off Management BMP to specifically state that the visual inspection of roll-offs in use will include checking for structural deficiencies, rust holes and cracks. We also added that when covers are required, heavy duty covers with bowed frames or equivalent will be used and properly secured when not being filled or unloaded. Attachment A includes the updated Roll-Off Management BMP for reference.
- We have met with the waste management contractor to discuss NJDEP's observations, and our contract requirements and expectations. The Contractor agreed that personnel loading or unloading a roll-off must check the immediate area before and after moving the roll-off to ensure that material was not spilled. In the event of a solid or liquid release before or after moving a roll-off, the Contractor was advised of the need to contact Bayway personnel before leaving the area. When roll-offs in unusable condition are observed, Bayway will advise the Contractor.
- NJDEP's inspection observations were added to the agenda for discussion with Infineum, ExxonMobil and Eastman Chemical at our next SPPP BMP meeting.
- We have taken out of service and removed from the site over twenty roll-offs considered unacceptable for further use since NJDEP's inspections.
- We have reviewed the weekly inspection report forms in use and consider the forms and frequency of use to be adequate. Although the forms are only filled out weekly, the waste management areas are checked more routinely. Considering this, rather than revise the form or its frequency of use, we have made applicable personnel aware that the expectation is that observations requiring response should be documented with the planned or completed response in the inspection report. As training, someone from Bayway environmental staff will participate in several inspections to ensure form documentation meets expectations. Both people will be named on the inspection form. Periodic checks of the weekly inspection report by Bayway environmental staff will also be conducted.
- We clarify that the reason that NJDEP observed thin plastic sheeting on several roll-offs is because Bayway personnel temporarily covered the roll-offs until the Contractor could provide and install proper tarps. Providing proper tarps is one of the Contractor's responsibilities.
- Bayway will continue to have damaged roll-offs removed promptly from the site. We note that out of service roll-offs may not be tarped.

Please note that we have also included additional responses specific to Polypropylene roll-off observations in our response to NJDEP's NJ0001511 inspection report and NOV, and have not repeated them here for brevity purposes.

**Deficiency # 2:** (repeated herein for reference)

During the June 12 and 13 inspections, two recessed areas were observed in the Tank 519 Waste Management Area for sand blasting waste and polypropylene ("PE") pellets. Both were partially filled with water. Sand blast and PE pellets were strewn around the surrounding grounds. It appeared that vector trucks may have dumped these materials. See the attached photos. This activity was not mentioned in your SPP Plan. During the inspection conducted on October 29, both these areas were cleaned and the practice discontinued.

**Response to Deficiency # 2:**

As stated above, both the residuals (sand blast grit and polypropylene pellets) and the concrete block bins that were used for containment of the residuals within the 519 waste management area have been removed. The observed water was likely rain trapped within the bin area. Over

an inch of rain fell June 10 and 11, and almost another inch of rain fell the morning of June 13, ending shortly before the inspection. Although we agree that the residuals should have been managed better, please note our response to Deficiency 1 under Facility Description and Procedures which explains how the 519 waste management area still provides containment for solids and stormwater runoff. As a result, although pellets were observed "strewn" beyond the containment bins, they were still contained within the 519 waste management area. Even so, we agree that management of these residuals should have been better and have advised vacuum truck supervisors that it is not acceptable to store grit and plastic residuals in an uncontained earthen area. Specific to plastic residuals, we added the following to BMP Section VI of the SPPP under the Waste Management Heading:

"Polypropylene residual will only be managed at contained waste management areas (e.g., Polypropylene pellet separator and vacuum truck solids bay areas) and will not be stored outside of closed or covered containers on earthen surfaces exposed to wind."

The updated Waste Management BMP from the SPPP is included as Attachment B.

**Deficiency # 3:** (repeated herein for reference)

On June 12, free oil was noted on the surface of the stormwater contained in the Tremley Tank Field oil/water separator. The clay lined banks of the separator were stained with oil, as were the many black balls floating within. A petroleum odor was very noticeable. Furthermore, a very visible sheen was observed floating in the outfall chamber, along with an old (black), absorbent pig laden with oil. See the attached photos and NOV.

This oil/water separator discharges to Morses Creek via its DSN 010 outfall. This outfall is not regulated in your NJPDES Permit to be sampled. This outfall had not been previously inspected by this writer.

During the October 29 inspection, an oil sheen was observed on the surface of the DSN 010 separator. Oil was still coating most balls floating within, and still staining the clay walls. However, the amount of free, floating oil was notably less than observed on June 12. According to representatives of P66, this separator is routinely skimmed by vacuor truck. Furthermore, little sheen was noted in the outfall chamber, though historic staining was still observed on the walls.

This Bureau will discuss this DSN 010 outfall with the NJDEP Bureau of Non-Point Pollution Control when your NJPDES Stormwater Permit is renewed, and recommend that it be added as a sampling location. In advance of that change, this Bureau requests that P66 add DSN 010 as a quarterly sampling location for the same parameters monitored at your other 8, similar, regulated outfalls under this Permit. This Bureau asks that the sample results be maintained by P66 (and provided to the Department on request) in advance of your new Permit.

P66 is hereby REQUIRED to institute the same BMPs for this DSN 010 outfall as the 8 others in your Permit. P66 must continue to remove floating oil, and clean the banks of this separator and effluent chamber. Fresh absorbent pigs should be maintained floating in the final outfall chamber.

**Response to Deficiency # 3 (and #11):**

This response is organized as follows:

- Description of the facility
- NOV response
- Deficiency response

#### Facility Description:

The Tremley Separator is an oil-water separator in stormwater service for Tremley tankfield. The separator was constructed in the 1920s and updated in 1964. The separator basin is an earthen surface impoundment constructed of compacted clay covered with stone for erosion protection. The depth from the floor to the top of the berm was 13 feet until the separator berm was raised one more foot in 2001 to be level with connected tank berms (to ensure containment when valves are open). It has an oval shape with a width of 80 feet and a length of 100 feet. The separator basin is covered with floating plastic balls which are maintained in accordance with an air permit requirement to reduce air emissions from Tremley Separator. Flow from the basin passes through two twenty inch diameter pipes with downturned elbows on the upstream side for oil containment into a concrete outlet chamber that is about eight feet by eight feet square in surface area, open at the top. The outlet chamber then has two separate twenty inch diameter outlet pipes that discharge out of the chamber. The outlet pipes originally discharged directly into the beginning of the Tremley Ditch near the Tremley Separator. The initial part of the Tremley Ditch was filled in by ExxonMobil in the 1990s to accommodate a site remediation project. ExxonMobil replaced the initial part of the ditch with a 48 inch diameter sewer that now carries the Tremley Separator discharge through the site remediation project area to the new beginning of the Tremley Ditch, which is now the upstream end of the Tremley Ditch.

The Tremley Ditch was constructed to drain stormwater from the Tremley Tankfield to Morses Creek. Tremley Ditch is not a receiving water body; it is a manmade ditch that dates back to the early 1920s. Although upstream portions have since been filled in, the remaining portion of the Tremley Ditch is still over one thousand feet long. The Tremley Ditch currently receives stormwater runoff from the Tremley Separator, other smaller stormwater ditches, overland runoff, and another sewer discharging stormwater from the ExxonMobil site remediation area. About 180 acres drain to the Tremley Ditch, with the Tremley Separator receiving runoff from over 130 acres in total. The Tremley Ditch has a low level overflow dam upstream of its discharge into Morses Creek. The dam maintains a constant water level in the ditch supporting two spill booms that can capture floating material that enters the Tremley Ditch (e.g. from the Tremley Separator, from a leak from pipelines that cross over the ditch, or from road run-off draining into the Tremley Ditch). The dam and spill booms are significant BMPs that supplement other BMPs. The dam and spill booms were specifically installed in the 1990s to further reduce the chance of oil from spills, leaks and stormwater runoff from entering Morses Creek. The Tremley Ditch provides redundancy in oil spill containment BMPs for the Tremley Tankfield. Figure 1 shows the Tremley Separator, Tremley Ditch, the dam and spill booms within Tremley Ditch, and the Tremley Ditch discharge point into Morses Creek, as described above.

The Tremley Separator cannot discharge directly into Morses Creek without flowing through the Tremley Ditch. Because of the minimum water level that is maintained by the Tremley Ditch dam, the Tremley Separator basin and outlet chamber also maintain a minimum water level that is higher than the separator outlet pipes (which is why the outlet pipes are not visible in the outlet chamber and why sheen can build up in the chamber with time). The constant water level enhances the capture of sheen both in the Tremley Separator basin and in the outlet chamber, further reducing the chance of oil leaving the separator.

The Tremley Separator differs from the other Bayway Refinery tankfield oil-water separators for several reasons. First, it has the largest drainage area and thus the most potential sources,



including pipes, pumps, valves, tanks and vehicles. Furthermore, while the other separators service tankfields that are only in product service, the Tremley Separator also has equipment and tanks in crude and fuel oil service. As a result, if crude or fuel oil leaks into the Tremley Separator, the heavier fractions of oil trapped between the floating balls may not fully dissipate with time, and become viscous with limited mobility, especially during cold temperatures.

NOV Response:

NJDEP stated in the NOV that "Storm water collected in Tremley Tank Field discharge chamber (after the oil/water separator) contained a sheen and a weathered absorbent pig". The NOV then says "P66 must not release stormwater from its DSN 010 Tremley Tank Farm oil/water separator that is visibly contaminated with petroleum". The NOV cites N.J.A.C. 7:14A-6.2(b)1, which requires implementation of BMPs to control or abate the discharge of pollutants. However, discharge of pollutants is defined at N.J.A.C. 7:14A-1.2 as a release of a pollutant into the waters of the State. The definition goes on to further specifically state that a leak into a secondary containment system which does not involve a release into the waters or lands of the State is not a "discharge" for NJPDES purposes.

Considering the above and for the following reasons, Bayway does not believe that the cited observations are a violation of the permit:

- Where practicable, Bayway has multiple BMPs in place so that permit compliance is not necessarily reliant on any single BMP.
- Neither the Tremley Separator nor the Tremley Ditch are waters or lands of the State.
- Oil within an oil-water separator, whether in the basin or an outlet chamber, is not a violation of any rule or permit. By virtue of its design and the Tremley Ditch dam, the outlet chamber is a contained portion of the Tremley Separator. It is not open to a receiving waterbody.
- The outlet chamber liquid level is always above the outlet pipes such that sheen on the surface within the chamber is trapped and not representative of the discharged water.
- Sheen within the outlet chamber was being managed with absorbent sweep, that is periodically removed and replaced. Despite over 130 acres of stormwater that can drain through the separator, the outlet chamber only had a dull sheen over a portion of its small surface area, from an oil volume too small to estimate.
- Oil that was observed floating in the separator and staining parts of the separator banks and walls is oil residual trapped between the floating balls. The oil is not very mobile. Oil stains on portions of the banks and concrete are also not mobile and generally are solidified from sun exposure.
- There was no release of "visibly contaminated" stormwater. Both NJDEP and USEPA representatives observed that there was no sheen in the Tremley Ditch on the day (June 12, 2019) oil was observed in the Tremley Separator basin and sheen in the Tremley Separator outlet chamber, despite runoff from over an inch of rain that had fallen on June 11 and June 12, and ended shortly before the inspection.
- BMPs have been in place and continue to be implemented to ensure no oil is discharged to Morses Creek from the Tremley Separator or the Tremley Ditch.
- There are also no known prior releases of oil from the Tremley Separator that required skimming in the Tremley Ditch or Morses Creek despite years of leak records that are maintained and submitted to NJDEP in accordance with DPCC rules.
- P66 responds to all onsite leaks and spills in accordance with an approved NJDEP DPCC and DCR Plan.



- There are no continuous or routine sources of oil into the Tremley Separator. This was observed by NJDEP during a January 8, 2020 drive through the Tremley Tankfield, when no free oil or sheen was observed in the Tremley Tankfield.
- The separator has been routinely skimmed limiting the oil thickness layer to roughly the depth of the balls in the water. Because the spaces between the balls are not continuous across the surface, the floating oil that is above the bottom of the balls tends to stay in place, limiting the ability to skim the Tremley Separator basin completely oil free.
- The four Tremley Separator groundwater monitoring wells were sampled from June 1992 through March 2006 for the BTEX compounds (Benzene, Toluene, Ethylbenzene and Xylenes) in accordance with NJPDES DGW permit NJ0105104, with almost all data results below detection, despite potential past practices dating back to the 1920s predating the Clean Water Act and the data dating back to Exxon's ownership (prior to April 1993).

#### Deficiency Response:

Although P66 does not agree that the observation of oil in the Tremley Separator is a violation of the permit, we will implement additional steps to further reduce the risk of an oil release from the Tremley Separator, including the following actions in response to the inspection report deficiencies and recommendations, and NOV:

- First, as requested by NJDEP, Bayway has initiated quarterly sampling of the Tremley Separator outlet chamber for Total Organic Carbon (TOC), Total Suspended Solids (TSS), Total Petroleum Hydrocarbons (TPH) and pH. The first sampling event was conducted on January 27, following a one inch rain event on January 25, with the following results:
 

pH = 7.54 Standard Units  
 TOC = 3.4 mg/l  
 TSS = 14 mg/l  
 TPH =<1.7 mg/l
- Regarding floating oil within the separator basin: Bayway will skim the separator at least twice per week with a vacuum truck when there is a visible floating oil layer. Bayway may apply hot water to the separator to enhance mobility of the floating oil trapped between the balls and improve skimming. Once weather turns warmer and floating oil viscosity decreases (e.g., May), if floating oil is still present, Bayway will attempt to use a drum skimmer in the separator as a trial to see if skimming of oil trapped between the floating balls improves. Skimmers will plug under current conditions and may still need the application of hot water to enhance floating oil skimming during warmer weather depending on the viscosity of the floating oil.
- Regarding sheen in the separator outlet chamber: Bayway will maintain and replace absorbents in the outlet chamber on a weekly schedule as long as sheen is present.
- Regarding stained concrete walls: Bayway will wait for warmer weather (e.g., May) before trying to hot water wash the stained areas. Pressure jetting is not recommended because of the age and unknown condition of the concrete. Any staining that does not come off with hot water washing in warm weather will be considered to be immobile, contained and as presenting no environmental impact risk.
- Regarding stained earthen/stoned banks: Bayway will wait for warmer weather (e.g., May) before applying hot water over the stained areas. Pressure jetting should not be used as it will erode the stone and clay unnecessarily. Any staining that does not come

off from hot water washing in warm weather will be considered to be immobile, contained and as presenting no environmental impact risk.

- Please note that BMPs in place at the other regulated units within the Bayway Refinery site are already in use to control oil from entering the Tremley Separator. These include requirements in the DPCC and SPCC Plans to contain, control, cleanup and report spills or leaks. BMPs in the DPCC and SPCC Plans are an integral part of the SPP Plan. However, because of the site's reliance on containment booms and absorbents as BMPs for floating material control, we have added a section titled "Floating Residual Management" to BMP Section VI of the SPP Plan. In general, this new section documents existing BMPs in use that include inspecting and maintaining containment booms at critical locations and absorbents in use either for recovery or as precautionary measures enhancing containment boom effectiveness. The "Floating Residual Management" addition is included as Attachment C for reference.

**Deficiency # 4:** (repeated herein for reference)

On June 12, this writer inspected your rail car unloading area at the 40-Acre tank field. A small amount of oil was noted around a manhole upstream of your northern oil/water separator. This oil reportedly bubbled out of this manhole following a heavy rain event. On July 8 this manhole was raised to reportedly solve this overflow issue.

**Response to Deficiency # 4:**

The observed manhole takes flow from the rail car unloading containment area and routes it to the rail car oil-water separator. There is a containment valve at the inlet to the oil-water separator that is normally closed. As previously discussed, the top of the manhole cover was found to be slightly below the top of the containment area. As a result, when the oil-water separator inlet valve was shut, it was possible for liquid to seep out from around the manhole cover if the containment area was near full (e.g., following a heavy rain). Confirming our prior communications, the stained area around the manhole was addressed on June 12 after it was observed and the manhole was raised July 8, 2019 to prevent a recurrence, with a photograph of the raised manhole emailed to NJDEP November 15, 2019.

**Deficiency # 5:** (repeated herein for reference)

P66 conducts poor housekeeping and material handling at its polypropylene manufacturing facility area in the following ways:

- a. Waste PE is expelled into twin roll-offs via a chute over each. Both roll-offs are exposed to wind and indirect rain. In addition to the pellets, a white fluff material also drops into each roll-off. During inspections on June 20 and October 29, this fluff material was noted on the ground surrounding these roll-offs due to wind. See the attached photos.
- b. A trench drain surrounds the PE separator and waste roll-off loading area. This drain serves to collect PE pellets that escape this process and sends them back to the separator to be recovered. However, spilled PE was noted on the surrounding grounds on June 20, outside this containment area. See the attached photos.
- c. A white/brown material was noted coming from a vent pipe on a wall, located behind your waste PE roll-offs. This brown material was noted on the ground in this area on June 20 and October 29. See the attached photos. This writer will further investigate this material on his next visit to your site.

In each case above, the pellets, white/brown material and fluff could be blown (or washed by rain) from this area to nearby storm drains to Morses Creek.

A review of Department records indicates that housekeeping deficiencies in this area were noted in previous inspection reports dated January 31, 2012, May 16, 2013, June 9, 2014, and October 15, 2015. See the attached NOV.

**Response to Deficiency # 5 (and #11):**

As the NJDEP knows, the Bayway Refinery is an outdoor facility, which includes the associated Polypropylene Plant. As a result, BMPs are relied upon to control residuals and runoff. We have described Bayway's BMPs that are in use to control discharges from the Polypropylene Plant area in our response to NJDEP's inspection report and NOV for NJPDES Permit NJ0001511 and note that the BMPs that are in place apply to both NJPDES Permits NJ001511 and NJ0026671. Rather than repeating the BMPs in place here, for brevity, please refer to the response to NJ0001511 inspection report and NOV for the BMP discussion. This response focuses on the above observations.

- a. Regarding baghouse discharge area. As the NJDEP knows, Bayway has tried several methods to control the discharge of plastic residual outside of the baghouse exhaust receiving roll-offs. Most recently, on January 8, 2020, NJDEP observed the trial use of a roll-off with a modified cover allowing the discharge of plastic residual from the baghouse exhaust directly into the custom covered roll-off. We will monitor the effectiveness and practicality of this cover for controlling or reducing plastic residual exposed to wind while filling the covered roll-off. Bayway will also evaluate the potential use of screens, fences and/or curtains for the baghouse exhaust roll-off area in 2020 if the current trial with the roll-off cover is not considered successful. Even so, we note that windblown residual is still contained onsite in accordance with the multiple BMPs in place to prevent their discharge to a receiving water body, as described in the response to the NJPDES NJ0001511 inspection report and NOV.
- b. Regarding trench drain. As the NJDEP knows, the trench drain in the area of the Polypropylene Plant baghouse exhaust and pellet separator area was installed to capture runoff and plastic residual for discharge to and recovery at the pellet separator. This is one of many BMPs in place that are used to prevent the discharge of polypropylene residual into a receiving waterbody. This trench however does not capture runoff from the entire surrounding area. As such, residual that was windblown or originated from another source outside of the trench drainage area will not be captured by the trench. As stated under the Facility Description and Procedures response to Deficiency 1 above, this general area still drains to the onsite wastewater treatment plant, although it is possible for loose plastic residual to be windblown to areas that drain to the Railroad Avenue Ditch. Control of plastic residual that discharges into Railroad Avenue Ditch is addressed in Bayway's response to NJDEP's NJPDES NJ0001511 inspection report and NOV.
- c. Regarding white/brown material by vent: The observed material was located by the exhaust vent for the electrical Motor Control Center (MCC) located within the building. The MCC has its own intake and exhaust for air temperature control and is not a source of plastic residual other than any plastic residual that comes in with the intake air may come out the air exhaust. Based on the color and location, the brown material was most likely exposed soil in the area. Even so, runoff from this area flows to the trench drain

discussed in "b." above and is thus effectively contained. As the NJDEP knows, plastic residual that collects in this area is periodically recovered for offsite disposal (if it contains other material) or recycling (when it is only plastic).

Even though Bayway has BMPs in place that have prevented the discharge of polypropylene residuals into Moses Creek, we believe that it is generally more effective to control and minimize the release of polypropylene residuals than to recover them afterward. We have demonstrated this belief through the improvement of the BMPs that are in use and our commitment to continue to improve BMPs as necessary when practicable.

**Deficiency # 6:** (repeated herein for reference)

Two valves drain the water from your oil/water separator at DSN 017A. During the inspection, the wheel to turn one of these valves was broken. The other valve was frozen. This writer recalls a history of valve difficulties during previous inspections.

To the knowledge of this writer, P66 does not have a program to routinely maintain and exercise valves used to discharge and convey stormwater. This includes valves that drain water contained in each individual storage tank farm, valves that convey water towards the oil/water separators, and valves that contain and release water within each separator. In the event of an emergency (such as an extreme weather event), the proper operation of these valves could prevent an uncontrolled release.

**Response to Deficiency # 6 (and #11):**

First, to clarify the DSN 017A separator valve observations cited in the deficiency:

- The broken hand wheel was due to a sheared pin that connects the hand wheel to the valve shaft. A disconnected hand wheel however does not prevent the valve from being operated. Operators simply use a wrench to turn the shaft and open the valve. Using wrenches and lubrication as needed to open gate valves is normal operator practice.
- The "frozen" valve did not turn by hand but this is not unusual as operators typically use wrenches to open and close valves from and to a tight position. This valve was operable with a wrench. It is normal practice for refinery operators to use a wrench to tighten a valve, including valves with hand wheels – that is how they make sure they are tight.
- Both valves were in the closed position as required and could be opened if/when needed by operators who routinely have to open and close valves of different sizes, types and conditions, using wrenches and lubrication as needed. That is part of their training to qualify as operators at the refinery.

Regarding a containment valve exercise program, supervisors for the areas with containment valves have advised that they do not support a program to exercise the containment valves on a set schedule for multiple reasons, including the following:

- Generally there have not been pervasive issues with containment valve operation.
- Valves do not have to be operable by hand only. Wrenches and lubrication as needed are accepted practice.
- In general, NJ DPCC and Federal SPCC rules require containment valves to be kept closed except under specific conditions and all of the valves referenced in the deficiency above are DPCC and SPCC regulated.



- Each of the four stormwater oil-water separators have two outlet valves, providing redundancy in the event that a valve does not open. Two open valves are not needed to drain the separators.
- Most if not all of the other containment valves referenced in the deficiency are exposed to grit and other debris from earthen containment areas. An operator opening a valve purely to exercise the valve may not be able to tell that the valve is watertight when shut if grit gets into the valve seat. Opening and closing these valves only when needed to drain water allows the operator to visually see that the valve shuts watertight.
- Opening a valve that is not containing something (e.g., due to lack of rain) does not give an operator an indication that the valve actually opened. Most of the containment valves in use at Bayway are gate valves. Dropped gates can occur but can not be easily identified when there is no flow.
- Bayway has operators and contractors available with the ability to respond to valve issues if needed (e.g., during an emergency).
- Bayway has an established maintenance process for planning equipment repair as needed, including valves. Equipment needed for safety or environmental compliance gets prioritized accordingly.
- It is easier to address a valve that won't open than one that won't close fully, especially in an emergency.

Considering the above, Bayway believes it is more prudent to continue its current practices, which are consistent with the petrochemical industry for valid reasons and have not resulted in any environmental impacts.

**Deficiency # 7:** (repeated herein for reference)

P66 does not have a permanent structure to store salt at your "Fair Trade" truck loading terminal. During the June 13 inspection, a large pile of salt was observed within 3-sided concrete block walls, covered with light duty tarp. During the previous inspection conducted on June 30, 2017, wind had partially blown the tarp off this pile, exposing the salt to rain. P66 is aware that medium duty tarps easily tear from wind and rain. See the attached photo. This deficiency was noted in the previous December 21, 2017 inspection report.

**Response to Deficiency # 7:**

Even though the salt storage area at the Linden truck terminal mentioned above could only drain to the refinery wastewater treatment plant if exposed to rain, in response to NJDEP's comment, the Linden terminal decided to move its salt storage indoors, using the warehouse located near the truck loading rack. The Road Salt and Sand section of SPPP Section VI addressing BMPs was revised to indicate that Linden Terminal stores its salt indoors now, although we still leave the potential of outdoor storage in the SPPP if the salt is properly covered and tarped to allow for salt storage during potential unplanned conditions (e.g., recall that Hurricane Sandy destroyed Bayway's salt storage dome shortly before the 2012 winter).

**Deficiency # 8:** (repeated herein for reference)

Part IV of the Permit, section G sets forth design criteria for Phillips 66 to meet at its permitted outfalls with the implementation of BMPs. TSS has a design criteria of 50 mg/l. During the following quarters, this criteria was exceeded at the outfalls listed below:



<u>Monitoring Period</u>	<u>Outfall</u>	<u>TSS Conc. Month Avg.</u>	<u>TSS Conc. Daily Max.</u>
Sept - Nov 2017	006	666 mg/l	666 mg/l
Dec 2017 – Feb 2018	014A	100 mg/l	100 mg/l
	006	119 mg/l	119 mg/l
March – May 2018	014A	195 mg/l	195 mg/l
	006	597 mg/l	597 mg/l
June – August 2018	017A		88 mg/l
Sept - Nov 2018	006	660 mg/l	660 mg/l
Dec 2018 – Feb 2019	014A	116 mg/l	116 mg/l
	006	991 mg/l	991 mg/l
March – May 2019	014A	63 mg/l	63 mg/l
	006	234 mg/l	234 mg/l
June – August 2019	014A	174 mg/l	174 mg/l
	006	635 mg/l	635 mg/l

The Department is aware that Phillips 66 hires a contractor to sweep Brunswick Avenue twice per month. Given some of the high readings still noted above, Phillips 66 should consider increasing its sweeping frequency or seeking other BMPs to meet these design criteria.

#### **Response to Deficiency # 8:**

##### **DSN 017A TSS**

With regard to the lone TSS design criterion exceedance of 88 mg/l reported at DSN 017A for the monitoring period June – August 2018, we note that the average TSS for the same monitoring period was reported as 48 mg/l, which is within the 50 mg/l TSS design criterion. The average was based on a subsequent storm sample collected in the quarterly monitoring period with TSS = 7 mg/l. We also note that to date there have been 54 DSN 017A samples analyzed for TSS in accordance with this permit, averaging 21 mg/l. There have also been 7 DSN 017A TSS samples analyzed since the 88 mg/l result, with all results being below the 50 mg/l design criterion. Based on this data, no additional response is considered necessary to demonstrate compliance with the TSS design criterion at DSN 017A.

##### **DSN 006A & DSN 014A TSS**

As the Department is aware, Bayway Refinery has taken multiple actions in a continuing effort to meet the TSS design criterion in stormwater runoff monitored at DSN 006A and DSN 014A. Despite implementing both structural and nonstructural BMPs, the TSS continues to typically exceed the criterion as shown above. Street sweeping frequency has previously been increased along Brunswick Avenue several times above the minimum of two per year required by the permit. Although the streets appear swept after the sweeping is complete, the TSS continues to typically exceed the criterion, even if sampled soon after sweeping is conducted. We have addressed this issue with NJDEP in annual stormwater reports, prior responses to CEI reports, and discussions with NJDEP Enforcement and permit writing personnel. Rather than repeat those discussions here, for reference we included as Attachment D an excerpt from our prior response to NJDEP's 2015 CEI report that discusses the TSS issue at DSN 006A and DSN 014A in more detail. In further support of that response, we add here that a review of NJDEP's most recent General Permit for Highway Stormwater does not include TSS monitoring requirements or a TSS design criterion for roads with similar traffic to Brunswick Avenue.

It is our understanding that this issue will be addressed during the permit renewal process which began with NJDEP stormwater permit writers visiting Bayway Refinery. Until then, we believe that continuance of the increased street sweeping frequency currently in place is the most appropriate response to control TSS at DSN 006A and DSN 014A at the present time. As such, we plan the following actions:

- Bayway will continue street sweeping Brunswick Avenue about 20 times per year (roughly twice per month with allowance for weather). We consider it impracticable to commit to an absolute sweeping frequency of twice every month due to potential issues with weather and contractors.
- Bayway will increase street sweeping to weekly during periods of heavy traffic (e.g., such as planned refinery shutdowns for maintenance) or planned construction within the vicinity of the sample points (e.g., such as occurred when ExxonMobil was conducting site remediation activities near DSN 006A); these events are not frequent but do correlate with some of the past highest TSS results.

Bayway also proposes for NJDEP consideration a trial using haybales at the DSN 006A sample point to determine their effectiveness for up to one year (traffic at DSN 014A is more congested than at DSN 006A due to security barriers). Bayway will remove sediments trapped by haybales (e.g., by vacuuming or shoveling) when removing or replacing haybales during the trial period. Conditions that Bayway will monitor are potential impacts on road safety, rain and snow impacts, and haybale integrity. The haybales will be positioned so that samples can still be collected from the catch basin inflow by operators. We will start the haybale trial with NJDEP's agreement.

**Deficiency # 9:** (repeated herein for reference)

Three totes were observed in your Rahway River Tank Field stored in a temporary containment area that had collapsed. At least 2 of the totes contained a flammable liquid. Had any tote ruptured or spilled, the collapsed containment area likely would not have functioned. See the attached photos.

**Response to Deficiency # 9:**

NJDEP is correct in that the temporary containment provided for the totes in accordance with our DPCC Plan was not properly maintained after it was installed. In the event of a release outside the temporary containment, Bayway would have responded in accordance with its DPCC Plan to prevent environmental impact. However, we agree that this is not an effective way of maintaining environmental compliance. We propose to use the photograph or similar photographs for refresher training (e.g., through a refinery environmental bulletin or in a Computer Based Training lesson) to stress the importance of area operators responding to similar observations during their routine rounds.

**Deficiency # 10:** (repeated herein for reference)

The outdoor hazardous waste drum storage pad (next to your covered Waste Drum Storage Area) had visible cracks in the concrete. A few drums and totes were stored on this pad on June 13. P66 must assure the concrete is impermeable to prevent any hazardous (or non-hazardous) waste from possibly contaminating the ground below. See the attached photos.

### **Response to Deficiency # 10:**

The photograph from June 13, 2019 shows ponded water within the containment pad. About ¾ inches of rain fell that morning and was not yet removed. As the NJDEP has been advised, the pad has no drain outlet resulting in the use of vacuum trucks to remove ponded water when needed. As seen in the photograph, the pad holds water. The cracks are also readily visible in the photograph but concrete with visible cracks can still provide adequate containment if the cracks do not continue through the full width of the concrete, which is not unusual for concrete. However, Bayway plans to remove the pad from service 1Q20 until the integrity of the containment area can be assessed and any required repairs implemented before resuming its use for residual storage. Bayway may still use the pad to store other material or equipment that does not require secondary containment, including possibly clean, empty containers.

### **Deficiency # 11:** (repeated herein for reference)

P66 must update its SPP Plan with more specific BMPs to respond to the following stormwater management issues:

- a. Your "Roll-Off Management" BMPs (Part VI) should be modified to require heavy duty covers secured at all four corners to prevent rain from contacting the material within. Curved frames should be used under the heavy duty covers to shed rain. See deficiency 1 above.
- b. BMPs should be created to inspect roll-off containers for structural deficiencies, rust holes, cracks, etc. BMPs should further describe what is done with containers identified with deficiencies. P66 should make its vendors, remediation partners, and manufacturing partners aware of these BMPs, and inform them not to bring damaged roll-offs to the property. See deficiency 1 above.
- c. Active waste management areas, such as the one at Tank 519 should be inspected more frequently than weekly. P66 operators should also record more detailed records of each inspection. See deficiency 1 above.
- d. BMPs must assure that clean, effective, absorbent "pigs" are maintained in all stormwater oil/water separator discharge chambers – especially those with a likelihood of a sheen. See deficiency 3 above.
- e. BMPs must be created for the PE manufacturing area, specifically for the disposal of PE pellets, fluff and white/brown material into roll-offs without that material being contacted by wind and rain. BMPs must also cover housekeeping in this area, including the collection and removal of pellets, fluff and white/brown material that is spilled or blown from roll-off containers. See deficiency 5 above.
- f. P66 must create a program to periodically maintain valves used to convey stormwater through your tank farms and oil/water separators (see deficiency 6 above).

Within 30 days of receipt of this report, P66 shall update its SPP Plan with BMPs to address each of the deficiencies noted above, and send a copy to this Bureau for review. The Department will provide comment it warranted.

### **Response to Deficiency # 11:**

Responses to the above listed issues follow the referenced deficiencies. Revised BMP sections of Bayway's SPP Plan are noted in the deficiency responses where applicable and have been included as Attachments A (Roll-Off Management), B (Waste Management) and C (Floating

Residual and Settled Sludge Management). We have also attached the full SPPP Section VI for inclusion in NJDEP's copy of Bayway's SPPP.

## **January 3, 2020 CEI Report Recommendations A, B & C**

### **Recommendation A:** (repeated herein for reference)

Phillips 66 must continue its program to label stormwater catch basins that flow to your process sewer system for treatment, and those that flow directly to the surface waters of the State. The Department complements P66 on the success of this program so far, as most drains observed by this writer during the inspections were properly labeled.

### **Response to Recommendation A:**

As the NJDEP is aware, Bayway continues its program to check labels on stormwater catch basins and replace them when found missing.

### **Recommendation B:** (repeated herein for reference)

Curbs that are only approximately 18" high surround the pad on which vector trucks dump solids and sludge. Once dry, these residuals are scooped up and disposed. During the inspection, spilled PE pellets were noted outside this low curb. The Department recommends that the curb height be increased to prevent future overtopping. See the attached photos.

### **Response to Recommendation B:**

Shortly after the June 13, 2019 observation, an elevated plastic lined wood board was installed across the end curb nearest the pad's catch basin to contain splashing material. Based on observations of staining on the temporary wall, Bayway intends to further increase the height of the wall to ensure containment by 2Q20, conditions permitting.

### **Recommendation C:** (repeated herein for reference)

Your covered hazardous waste drum staging area has no lighting for the safe movement of materials at night, or in poor weather conditions.

### **Response to Recommendation C:**

Bayway strives to ensure safe operating conditions and appreciates NJDEP's input. In the case of the hazardous waste drum storage area, the area is generally only used during the day. When needed to be used at night Bayway sets up portable lights. Bayway has previously considered installing permanent lights but decided the cost to not be justified for the limited night time use. As such, when lighting is needed, Bayway will continue to use portable lights.



## **Compliance Evaluation Summary and Checklist dated 12/26/2019**

The following addresses additional items listed as noncompliance that were not specifically included in the inspection report letter or addressed elsewhere in this response letter.

### **Page 6 of 11, Bottom Box:** (repeated herein for reference)

"Pavement and access roads needing repairs and unpaved surfaces with the potential to erode and discharge solids (soils and/or sediments) to surface waters. [N.J.A.C. 7:14A-6.2(b)1]" marked as ON (Out of Compliance, Non-referred) because "Not included in SPPP".

### **Response:**

Bayway is not aware of any requirement in its NJPDES permit requiring inclusion of road repairs in the SPPP. We are also not aware of any such requirement in NJDEP's Highway Agency Stormwater General Permit, Municipal Stormwater General Permit, NJ BMP Manual or SPPP Guidance. As such, Bayway does not believe it is out of permit compliance for something not required by its permit. However, Bayway agrees to add the following "Road Maintenance" description to BMP Section VI of the SPP Plan documenting existing onsite practices:

"The need for road maintenance (paved and unpaved surfaces) is planned annually. This includes repair of potholes and grading stoned surface areas. Repairs are managed through the refinery work planning process. Priority for repairs is based on safety, vehicular volume and road surface condition, as well as potential for impact on receiving waterbodies."

### **Page 8 of 11, Fourth Box From Bottom:** (repeated herein for reference)

"Elevations of existing drainage areas, including flow and drainage pattern" marked as ON (Out of Compliance, Non-referred) because "Not on map".

### **Response:**

Bayway assumes this comment is based on elevations and flow/drainage patterns not being shown on its overall Site Drainage Map, which Bayway primarily uses to display the refinery discharges and receiving waterbodies. NJDEP is aware that Bayway is a large site. As a result, the information identified as "Not on map" in NJDEP's inspection report can not legibly fit on the Site Drainage Map. Rather, as stated in Drainage Control Plan Section V of the SPP Plan, Bayway shows this information on more detailed refinery block size drainage control maps included in SPP Plan Attachment 1.

### **Page 8 of 11, Third Box From Bottom:** (repeated herein for reference)

"Final grading of drainage areas, including elevations and flow arrows showing the drainage to regulated outfalls" marked as ON (Out of Compliance, Non-referred) because "Not on map".

### **Response:**

Please see the prior response.

**December 26, 2019 NOV Corrective Action Nos. 1 & 2**

**Corrective Action # 1:** (excerpts repeated herein for reference)

Description of Noncompliance: Storm water collected in Tremley Tank Field discharge chamber (after the oil/water separator) contained a sheen and a weathered absorbent pig.

Corrective Action 1: P66 must not release stormwater from its DSN 010 Tremley Tank Farm oil/water separator that is visibly contaminated with petroleum. Fresh absorbent materials must be applied due to the likelihood of a sheen. [N.J.A.C. 7:14A-6.2(b)1]

**Response to Corrective Action # 1:**

Please see the responses to Inspection Report Deficiency numbers 3 and 11.

**Corrective Action # 2:** (excerpts repeated herein for reference)

Description of Noncompliance: Failure of the SPPP to control housekeeping in the 519 Waste Management and Polypropylene areas and elsewhere. Roll-off containers filled with waste were observed uncovered, exposed to rain. Several had spilled material on the ground. One was leaking from rust holes in the side. White fluff material was blown out of roll-offs in the PE production area by wind.

Corrective Action 2: P66 must properly cover roll-off containers to prevent exposure. Spills from roll-offs must be immediately cleaned and remediated. Damaged, leaking containers must not be utilized. PE pellets and fluff must not be exposed to the elements and wind. Pellets spilled on the ground must be routinely cleaned and collected. [N.J.A.C. 7:14A-6.2(b)1]

**Response to Corrective Action # 2:**

Please see the responses to Inspection Report Deficiency numbers 1, 2, 5 and 11.



# Bayway Refinery

Figure 1: Tremley Separator and Tremley Ditch

Tremley  
Separator

Morses Creek

Tremley Ditch  
Booms

Tremley Ditch  
discharge into  
Morses Creek

Tremley Ditch  
Dam

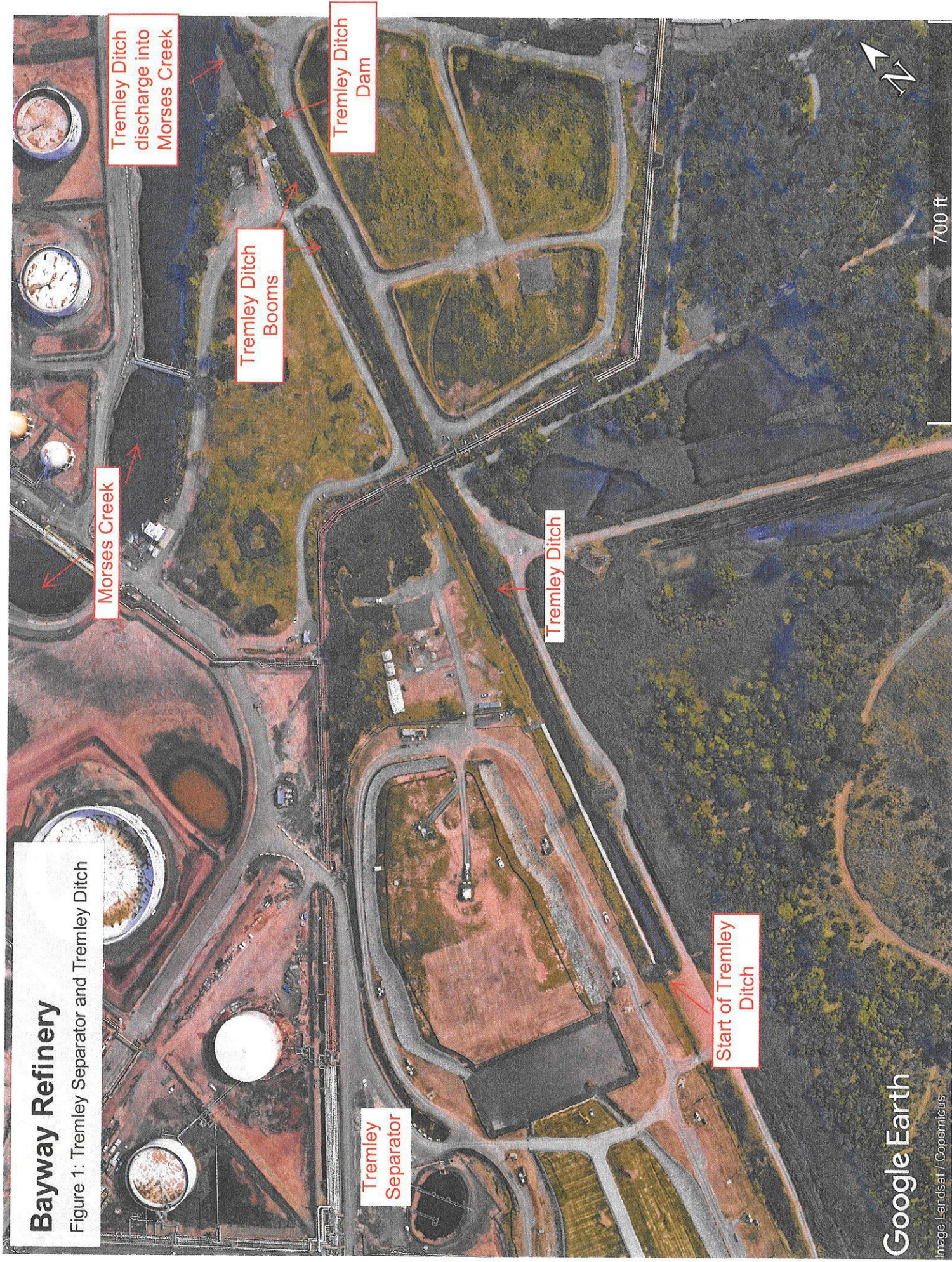
Tremley Ditch

Start of Tremley  
Ditch

Google Earth

Image Landsat / Copernicus

700 ft





## **Attachment A**

The Roll-Off Management BMPs in Section VI of the NJPDES NJ0026671 Stormwater Pollution Prevention Plan were updated as follows.

### **Roll-Off Management**

The use of roll-offs for waste management is discussed in DPCC Plan Section 6.3 and online at Bayway Refinery's intranet. The following are general requirements that apply to roll-offs:

- Personnel loading or unloading a roll-off will check the immediate area before and after moving the roll-off to ensure that material was not spilled. In the event of a solid or liquid release before or after moving a roll-off, Bayway personnel will be advised before leaving the area.
- Roll-offs are required to have liners and sealed back gates with the exception of roll-offs used for clean metal scrap, clean scrap wood, office trash and recyclables, including plastic residual being recycled. Bayway Refinery practice is to use older roll-offs for clean scrap metal because of the damage large metal pieces inflict on roll-offs during loading and unloading.
- Roll-off liners are required to be compatible with the material being handled.
- Roll-offs are required to be covered except when being loaded or unloaded with the exception of roll-offs not requiring covers as identified above (e.g., clean metal scrap, non-oily plant debris, lumber, bagged household refuse, recyclables). Heavy duty tarps with bowed supports or equivalent will be used when covers are required, with covers properly secured when not being filled or unloaded
- Roll-offs used for hazardous and non-hazardous waste management are required to be labeled accordingly, including an accumulation start date.
- Roll-offs in use or awaiting hauling will be visually inspected for seepage or leakage on at least a weekly basis.
- When roll-offs in unusable condition are observed, they will be removed from service. This will include leaking roll-offs. Out of service roll-offs will not be covered. Out of service roll-offs will be labeled or located in an area limited to out of service equipment until they are removed from the site.
- Roll-offs will be staged for sampling, if necessary, to determine disposition.

## Attachment B

The Waste Management BMPs in Section VI of the NJPDES NJ0026671 Stormwater Pollution Prevention Plan were replaced with the following section.

### **Waste Management (e.g., dumpsters, drums, totes, polypropylene residual, and garbage)**

Residuals and waste materials are handled, stored, transported and disposed or recycled in accordance with applicable regulations, including solid waste and hazardous waste requirements. Waste management procedures are documented and accessible by personnel on company intranets. In addition to the waste management procedures already addressed (e.g., scrap metal and roll-offs), examples of onsite procedures in place to ensure compliance with waste management procedures, and which thus also minimize or eliminate potential exposure to stormwater runoff to surface waters include the following:

- All residual/waste hauling for offsite disposal is conducted by licensed contractors. Only licensed disposal sites are used.
- Dumpsters remain covered when not being loaded or unloaded, and are required to be in good working condition free of compromises to their integrity (e.g., holes, gashes), except as noted elsewhere.
- Drums and totes that are empty but not yet cleaned (i.e. contain residual) are stored in a similar manner to full containers in approved DPCC or Waste Management Areas. Empty drums and totes are kept closed with bung plugs in place and are removed from operating areas by the Mechanical Environmental group upon operator request. Upon removal, the exterior is checked for leaked materials. Empty drums and totes are then collected and placed on the RRS/Tk 202 cleaning pad which drains to the process sewer, and are cleaned by washing with high pressure water. Drums are turned upside-down and allowed to drain. The drums and totes are collected by a third-party company for recycling or disposal. As an alternative, clean empty metal drums may be crushed and stored in a roll-off prior to recycling as scrap metal.
- Infineum drums containing residuals are collected in a paved area and drained as much as practical to the process sewer. Used drums are then shipped offsite for recycling.
- Drums for routine waste containment are kept in contained satellite accumulation areas or contained storage areas. Drums must be labeled indicating their contents and lids must be secure. The Refinery's Mechanical Environmental group removes drums to a centralized waste management area upon operator notification. The Infineum Waste Coordinator arranges for offsite waste disposal.
- Waste containing drums are stored in containment areas prior to shipment offsite. The following are onsite procedures that apply to drums containing waste:
  - Wastes are kept in drums that have secure lids (except when being sampled or when wastes are being added), are visually intact and leak free.
  - Drums containing incompatible waste streams are separated.
  - Hazardous and non-hazardous waste containing drums are labeled and separated.



➤ Satellite accumulation and waste drum storage areas are inspected weekly with refinery inspections documented in the Drum Inspection Logbook maintained in the Mechanical Environmental Section Office. Infineum utilizes a datalogger system to record weekly inspections.

- Cathode Ray Tubes are collected separately for recycling and not disposed as waste.
- Used tires are managed separately from other waste.
- When required, asbestos removal is by licensed personnel in accordance with applicable regulations. Asbestos removed for disposal is stored separately in roll-offs.
- Vacuum trucks are not stored overnight outside containment areas unless empty.
- Polypropylene residual will only be managed at contained waste management areas (e.g., Polypropylene pellet separator and vacuum truck solids bay areas) and will not be stored outside of closed or covered containers on earthen surfaces exposed to wind.

## Attachment C

The following BMPs were added to Section VI of the NJPDES NJ0026671 Stormwater Pollution Prevention Plan documenting floating residual and settled sludge management procedures in use at Bayway Refinery.

### Floating Residual Management

Floating residual containment and recovery is managed throughout the site using dams, baffles, spill booms, absorbents, vacuum trucks, skimmers, and other equipment. The need for removal and removal methods depend on quantity and type of collected material. Recovered solids are managed for offsite disposal. Recovered liquids are managed similar to other onsite liquid residuals depending on content. Following are established floating residual containment locations and applicable procedures within the site.

#### Fresh water reservoirs (refinery water supply) upstream of Dam 2:

- In general order of occurrence, source materials include but are not limited to floatables, biological material (e.g., leaves), scum (biological or manmade), sheen (e.g., road runoff), and floating oil.
- Sources are generally offsite runoff from Peach Orchards Creek and West Brook.
- Booms are used to collect materials upstream of water diversion pumps.
- Booms are checked daily.

#### Tremley, Poly and Railroad Avenue Ditches:

- Source materials include but are not limited to scum/foam (biological or manmade), floatables (including polypropylene residual in Railroad Avenue Ditch), biological material (e.g., leaves and grass, primarily in Tremley Ditch), sheen (e.g., road runoff, historical sources, equipment leaks), and floating oil (e.g., equipment leaks, and possibly process sewer overflows into Poly and Railroad Avenue Ditches).
- Sources are generally onsite, but Poly and Railroad Avenue Ditches can also receive offsite source materials from Arthur Kill intake (e.g., scum, foam).
- Low level overflow dams in each ditch maintain a water level needed for booms to be effective. (Dams may have to be lowered at times to accommodate upstream maintenance.)
- Booms are used to contain materials upstream of the ditch discharges into Morses Creek, supplemented by absorbents when appropriate.
- Ditches are checked each shift by operators and supervisors.

#### Tremley, Diesel, Forty Acres and Rahway River Tankfield Oil-Water Separators, and Dam 2 Sewer Skim Box:

- Source materials include but are not limited to scum (biological or manmade), biological material (e.g., leaves, grass), sheen (e.g., road runoff, equipment leaks), floating oil (e.g., equipment leaks), algae, and floatables.
- Sources are generally onsite, but Dam 2 Sewer Skim Box can also receive offsite source materials from Arthur Kill intake (e.g., scum).
- Valves, discharge pipes with downturned elbows at the upstream end, and/or baffles are used for containment.
- Separators are checked each shift by operators.

#### Morses Creek:

- Source materials include but are not limited to scum/foam (biological or manmade), floatables, biological material (e.g., leaves, grass), sheen (e.g., road runoff, historical

sources, equipment leaks), and floating oil (e.g., equipment leaks, process sewer overflows).

- Sources can be historic (e.g., oil seeps), onsite and offsite (e.g., Arthur Kill intake water, Dam 2 overflow, and NJ Turnpike runoff).
- Dam 1 (controlling Morses Creek water level) in combination with underflow baffles and booms provides containment for onsite and offsite sources.
- Morses Creek is checked each shift by operators and supervisors.

#### Absorbent and Boom Management:

- Contained material removal is based on amount and type of material.
- When needed, vacuum trucks and/or absorbents are used to recover oil/sheen/scum.
- Absorbents are used to supplement booms and/or in areas without booms where sheen can collect (e.g., tankfield separators, Dam 2 condenser sewer skim box) to enhance containment and recovery of oil and sheen
- Condition of absorbents is checked at least weekly for removal and replacement, if needed.
- Condition of booms is checked each shift by operators and supervisors.
- At locations where vacuum trucks are used, absorbent use may be reduced to a level that does not interfere with skimming

#### Settled Sludge Management

The need for settled sludge management can occur in waterways throughout the site, including ditches, stormwater separators, reservoirs and Morses Creek. There are no defined routine sludge removal requirements for these facilities. The need for settled sludge removal will be based on facility performance, visual observations and effluent quality (where applicable), in accordance with the following:

- Process operator input (e.g., observations, logs, data)
- Visual observations conducted as part of the quarterly SPPP inspections and documented within the quarterly SPPP inspection report for the tankfield oil-water separators and discharge ditches.
- The need for settled sludge removal from the reservoirs will be based on sludge build-up measurements in the vicinity of the withdrawal pumps, quality of pumped water received at the onsite water treatment plants, and pump capacity.

## **Attachment D: TSS Design Criterion Background**

**Reference:** December 3, 2015 P66 Letter to NJDEP responding to October 15, 2015 CEI report by NJDEP; Excerpt from Response to Deficiency #2

### **TSS Design Criterion Background**

Although we agree to increase the street sweeping frequency in an effort to control TSS from DSN 006A and 014A, we also believe that we have been operating in compliance with the permit and its intent for the reasons previously presented to the NJDEP and reiterated in the remainder of this response. As you know, NJ0026671 contains quarterly monitoring requirements at 8 stormwater discharge locations with pH and Petroleum Hydrocarbon permit limits. All samples have been within permit limits since monitoring began in June 2007 under the current permit. NJ0026671 also contains quarterly monitoring requirements at the same 8 stormwater discharge locations with Total Organic Carbon (TOC) and Total Suspended Solids (TSS) design criteria of 50 mg/L. There have been some TOC and TSS design criteria exceedances but all exceedances have been subsequently addressed with the exception of continuing TSS design criterion exceedances at DSN006A and DSN014A. DSN006A and DSN014A TSS results continue above the design criterion despite implementation of the SPP Plan upgrades identified in the annual certifications and reports.

DSN 006A and 014A (Bayway discharge numbers S1 and S13, respectively) represent storm sewer drains that discharge runoff from parts of Brunswick Avenue and adjacent areas into the onsite reservoirs. Brunswick Avenue is the main entrance road into and through the refinery site. As stated in the SPP Plan annual reports, there is no industrial activity or hazardous substance exposure in the drainage areas feeding these street drains that is contributing to the TSS. The primary pollutant causing these continued TSS exceedances has been determined to be road grit or dust from vehicular traffic and wind deposition. Street sweeping is conducted on this road but finer particles appear to continue to settle within the road surface variations and wash off with runoff. Routine vehicular traffic and wind blown particles appear to regenerate the road dust. The TSS in stormwater samples has been characterized as fine inorganic particles in addition to visible vegetative matter at times (e.g., seed, twig and leaf particles).

S1 and S13 both have stoned parking areas directly off Brunswick Avenue that result in some stone being carried into the road by vehicular traffic. In response to the issuance of the permit in 2007, Bayway Refinery implemented significant changes to the drainage areas for both DSN 006A and DSN 014A as part of sitewide stormwater control upgrades. Bayway Refinery upgrades have been made to the runoff areas with the intent of reducing the TSS levels associated with the stone sources. General upgrades completed in the DSN 006A drainage area to date include: paving previously stoned parking areas adjacent to office trailers along the west side of Brunswick Avenue; installation of alternating concrete blocks and stone filled, filter fabric backed gabions along the east side of Brunswick Avenue to control runoff and vehicular traffic from remaining stoned parking areas; paving with speed bumps at two stoned parking area entry locations to reduce stone carry-over from the stoned parking area into Brunswick Avenue; general curb repairs to control soil erosion into Brunswick Avenue; and other traffic controls to limit vehicular traffic between stoned and paved areas. General upgrades completed in the DSN 014A area to date include: about 1,000 feet of new street curbing along a grassed median to stop soil erosion from the median into Brunswick Avenue; and limited paving with speed bumps at three stoned parking area entry locations to reduce stone carry-over from the stoned contractor parking area into Brunswick Avenue. These improvements resulted in TSS reductions at S13. S13 TSS samples from June 2007 through April 2010 averaged over 600 ppm, with a maximum result of 2,500 ppm. Since then, the TSS has averaged about 200 mg/l,

with a maximum result of 633 mg/L. We believe that this data indicates that we have made significant progress toward meeting the design concentration at DSN 014A.

At this point, the TSS at both DSN 006A and 014A appears to have leveled out at an average of about 200 mg/L (plus or minus). About 8 total acres of the Bayway Refinery property drain to the reservoirs through these discharge points. The onsite reservoirs provide a water source for onsite industrial use after pretreatment of the water at the Bayway Water Treatment Plant (WTP). The pretreatment includes clarification and softening, essentially removing the same particles (and others) washing into the reservoirs. Assuming a runoff coefficient of 0.9, 45 inches of average annual rainfall, and an average TSS of 200 mg/L in the runoff for the full storm event, a maximum of 7 tons of TSS would discharge into the reservoirs annually. By comparison, the Bayway Refinery's WTP removes over 40 tons of TSS from the reservoir influent water annually. We note that the runoff TSS results are also "first flush" results collected within thirty minutes of the start of the discharge. As such, the inorganic TSS entering the onsite reservoirs is neither creating an environmental impact, impacting the general public (which has no access to the reservoirs), or affecting Bayway Refinery operations.

Even so, Bayway Refinery has sought means to reduce the TSS results further in accordance with the permit. We temporarily experimented with filter fabric within one catch basin on Brunswick Avenue as a trial but the fabric fouled quickly, resulting in unsafe ponding conditions in the road and ending the trial. The fabric also prevented sampling of the water that passed through and required heavy machinery to install and remove. Because Brunswick Avenue is in close proximity to the reservoirs, there is also little room available for more robust structural BMP controls on the discharges. In 2009, we pursued the installation of compact vortex separators in the discharge lines of DSN 006A and DSN 014A. Engineering drawings were prepared and applications were submitted to NJDEP for Flood Hazard Area and Freshwater Wetlands permits. The permit applications were not approved and subsequent scoping cost estimates placed the installed cost of two vortex separators at about \$800,000. Subsequent reviews of stormwater samples by a consultant after the applications were submitted indicated that the vortex separators were unlikely to meet the 50 mg/l design criterion anyway. As a result, the permit applications were withdrawn. Additional literature reviews and general experience indicate that the only traditional stormwater control technology that may be effective would be settling basins. However, there is inadequate space to install adequately sized settling basins between Brunswick Avenue and the onsite reservoirs, and the flood zone and wetlands impacts would be even greater than those for the more compact vortex separators. Even if space were available, the costs of settling basins would also far exceed the high cost of the vortex separators.

We also do not believe that the current conditions along Brunswick Avenue are unique to Bayway Refinery. Similar conditions of stone and grit build-up are observed along public roads and curbs in the Bayway area that receive similar traffic as that within Bayway Refinery. It is also noted that the vast majority of the area draining to S13 is located outside the secured, industrial portion of the Bayway Refinery. Further, half of the road draining to S13 is the entrance side to the Bayway Refinery and it has been visually observed that the entrance side of Brunswick Avenue has similar grit build-up along its curb as the exit side of Brunswick Avenue. This indicates that vehicles entering the site are contributing to the TSS within the Bayway Refinery site. A check of road runoff TSS data available online indicates that the TSS level in the Brunswick Avenue runoff is not unusual. For example:

- In the July 1998 Journal of Environmental Engineering article, Characterization and Pollutant Loading Estimation for Highway Runoff, the average TSS for runoff from an



urban site was 283 mg/l, and the average TSS for runoff from a residential area was 228 mg/l.

- In a February 2008 New Jersey Toxics Reduction Work Plan Study I-G Project Report by Great Lakes Environmental Center that was submitted to NJDEP, the average TSS was 169 ppm for runoff in five stormwater outfalls, with a maximum TSS result of 423 ppm.

We also note that the USEPA recently proposed a turbidity limit of 280 NTU for the draft federal construction associated with stormwater activity permit, and the proposed limit was withdrawn. The proposed turbidity limit was based on the use of stormwater retention basins, which the USEPA subsequently decided should not be mandated. USEPA conceded the withdrawal of the numeric limit was in part because "meeting a numeric standard may require installation of a sediment basin or other impoundment on certain sites". Rather, USEPA chose to continue to rely on best management practices to control stormwater quality in lieu of numeric limits. Stormwater retention basins have similarly been determined to be impractical to install along Brunswick Avenue by Bayway Refinery because of space limitations, wetlands and flood hazard areas along the reservoirs.

For historical reference, we also note that the previous version of NJPDES Permit NJ0026671 contained a TSS permit limit of 50 mg/L. An adjudicatory hearing and stay of permit conditions were requested for conditions in the permit by Exxon, the owner and operator of the Bayway Refinery at the time. The TSS permit limit was one of the contested issues and reasons for the adjudicatory hearing request for the TSS permit limit included the seemingly arbitrary basis for the 50 mg/l permit limit for stormwater runoff from existing sources. The request for an adjudicatory hearing was granted but a hearing was never held. The current permit addressed the issue by replacing the permit limit with the design criterion, but the basis for the TSS design criterion remains as arbitrary as the TSS permit limit was for the prior permit.

In summary, we believe the upgrades we have made and the BMPs we are implementing are consistent with or exceed requirements imposed on similar access streets immediately outside the site's fenceline. We also note that quarterly TSS monitoring of street runoff is not required for adjacent public access roads carrying similar traffic that drain runoff to state waters and suspect that if it were, the results would be similar or worse than those within the Bayway site.